FIG. 1

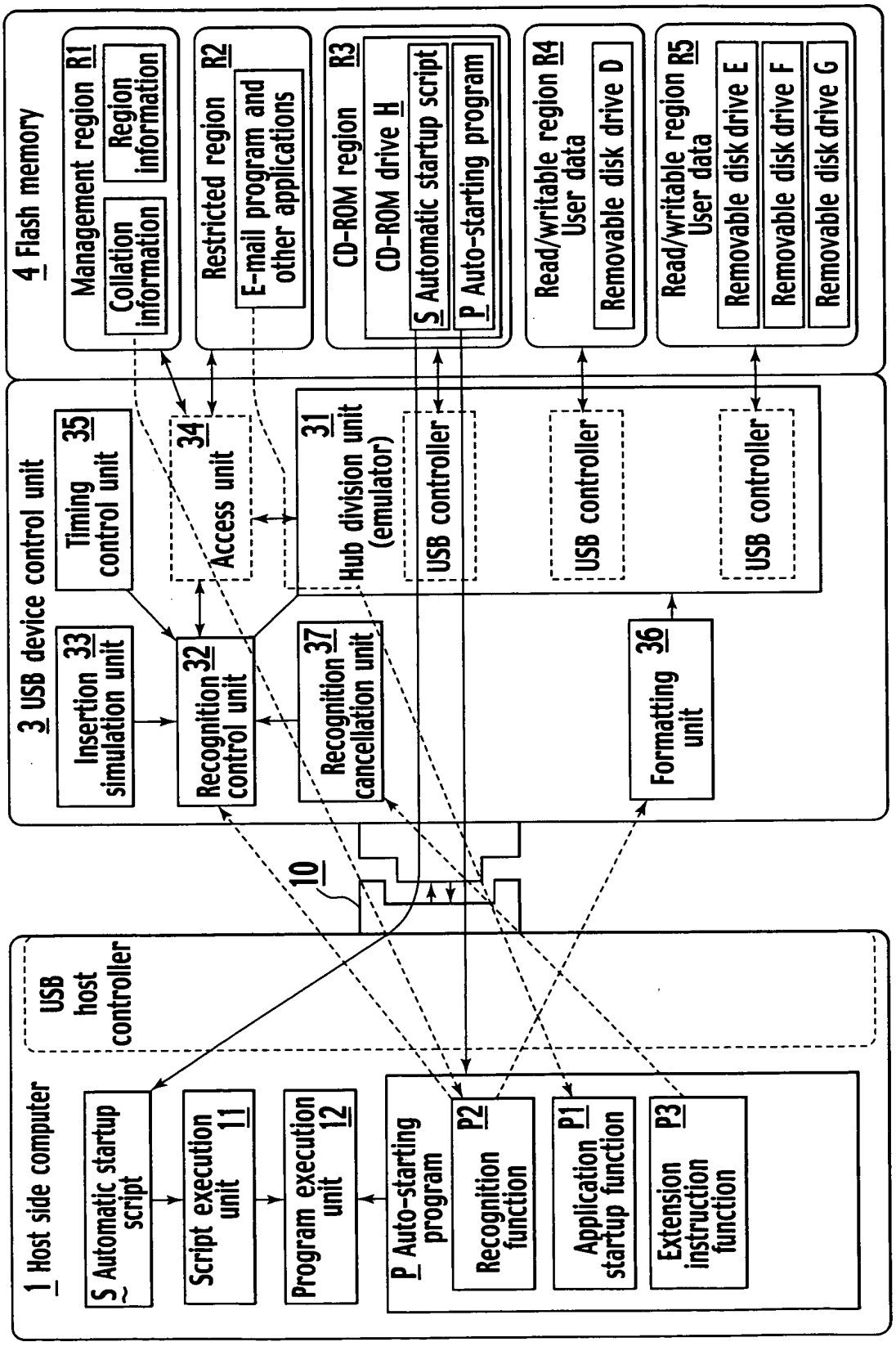

1 Host side computer
USB host controller
S Automatic startup script
Script execution unit 11
Program execution unit 12
P Auto-starting program
Recognition function P2
Application startup function P1
Extension instruction function P3
10
2
3 USB device control unit
Insertion simulation unit 33
Timing control unit 35
Recognition control unit 32
Access unit 34
Recognition cancellation unit 37
Hub division unit (emulator) 31
USB controller
USB controller
USB controller
Formatting unit 36
4 Flash memory
Management region R1
Collation information
Region information
Restricted region R2
E-mail program and other applications
CD-ROM region R3
CD-ROM drive H
S Automatic startup script
P Auto-starting program
Read/writable region R4 User data
Removable disk drive D
Read/writable region R5 User data
Removable disk drive E
Removable disk drive F
Removable disk drive G

FIG. 2

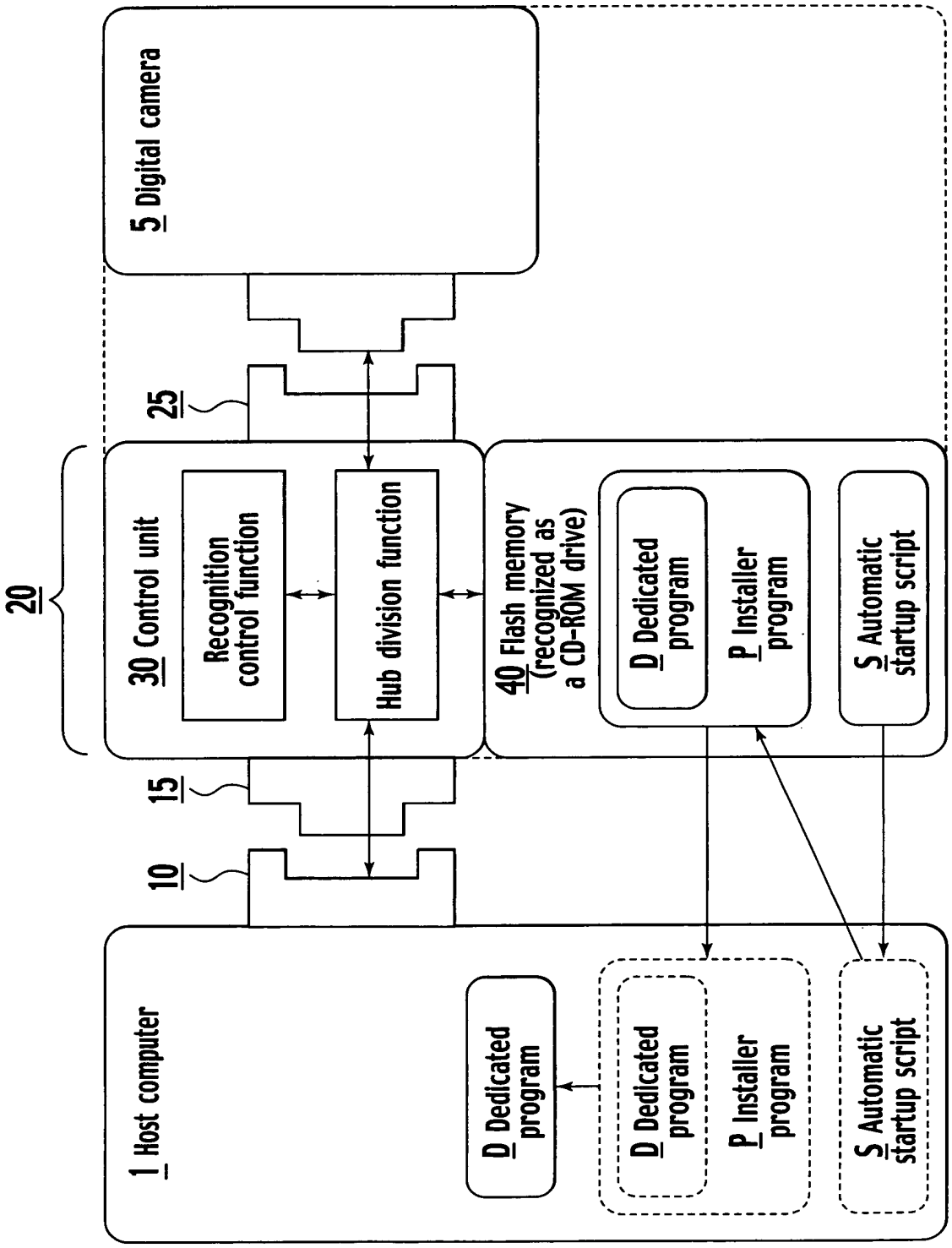

5 Digital camera
25
20
30 Control unit
Recognition control function
Hub division function
40 Flash memory (recognized as a CD-ROM drive)
D Dedicated program
P Installer program
S Automatic startup script
15
10
1 Host computer
D Dedicated program
D Dedicated program
P Installer program
S Automatic startup script

FIG. 3

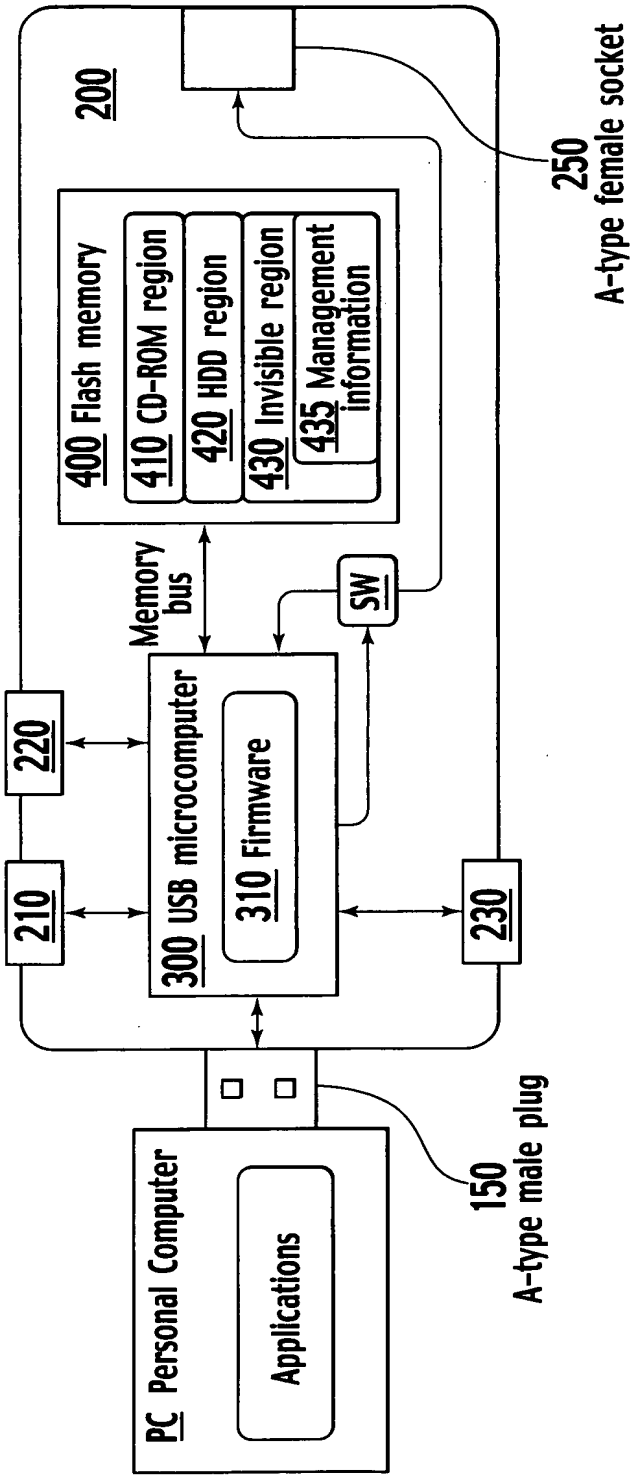

200
250
A-type female socket
400 Flash memory
410 CD-ROM region
420 HDD region
430 Invisible region
435 Management information
Memory bus
SW
220
210
300 USB microcomputer
310 Firmware
230
PC Personal Computer
Applications
150
A-type male plug

FIG. 4

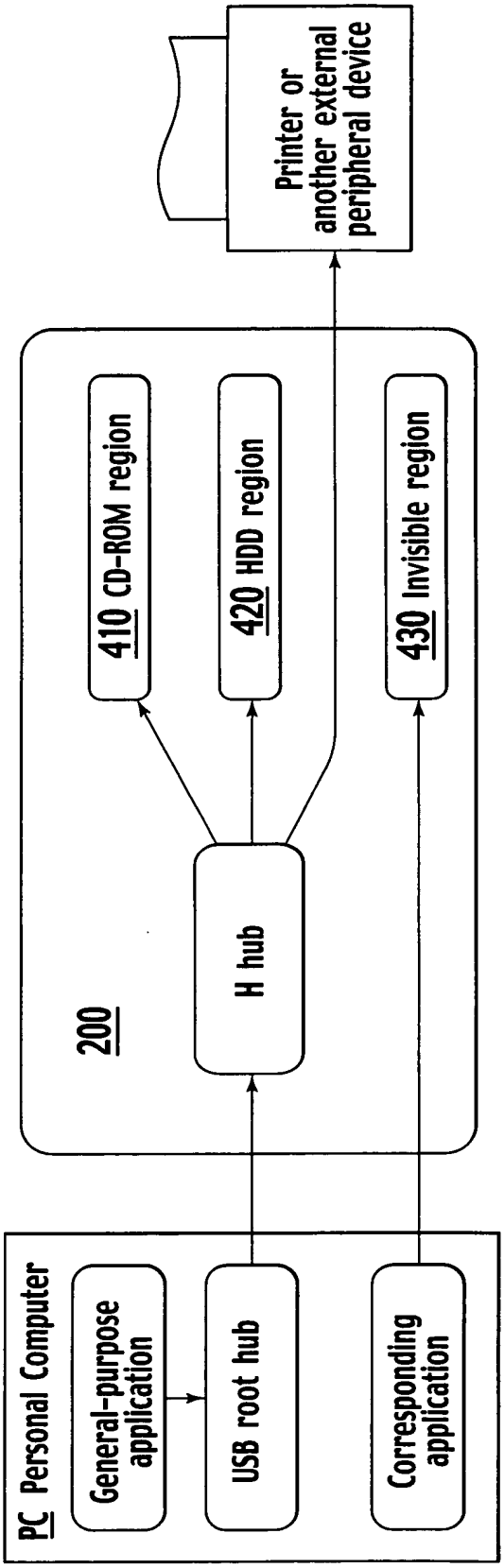

PC Personal Computer
General-purpose application
USB root hub
Corresponding application
200
H hub
410 CD-ROM region
420 HDD region
430 Invisible region
Printer or another external peripheral device

FIG. 5

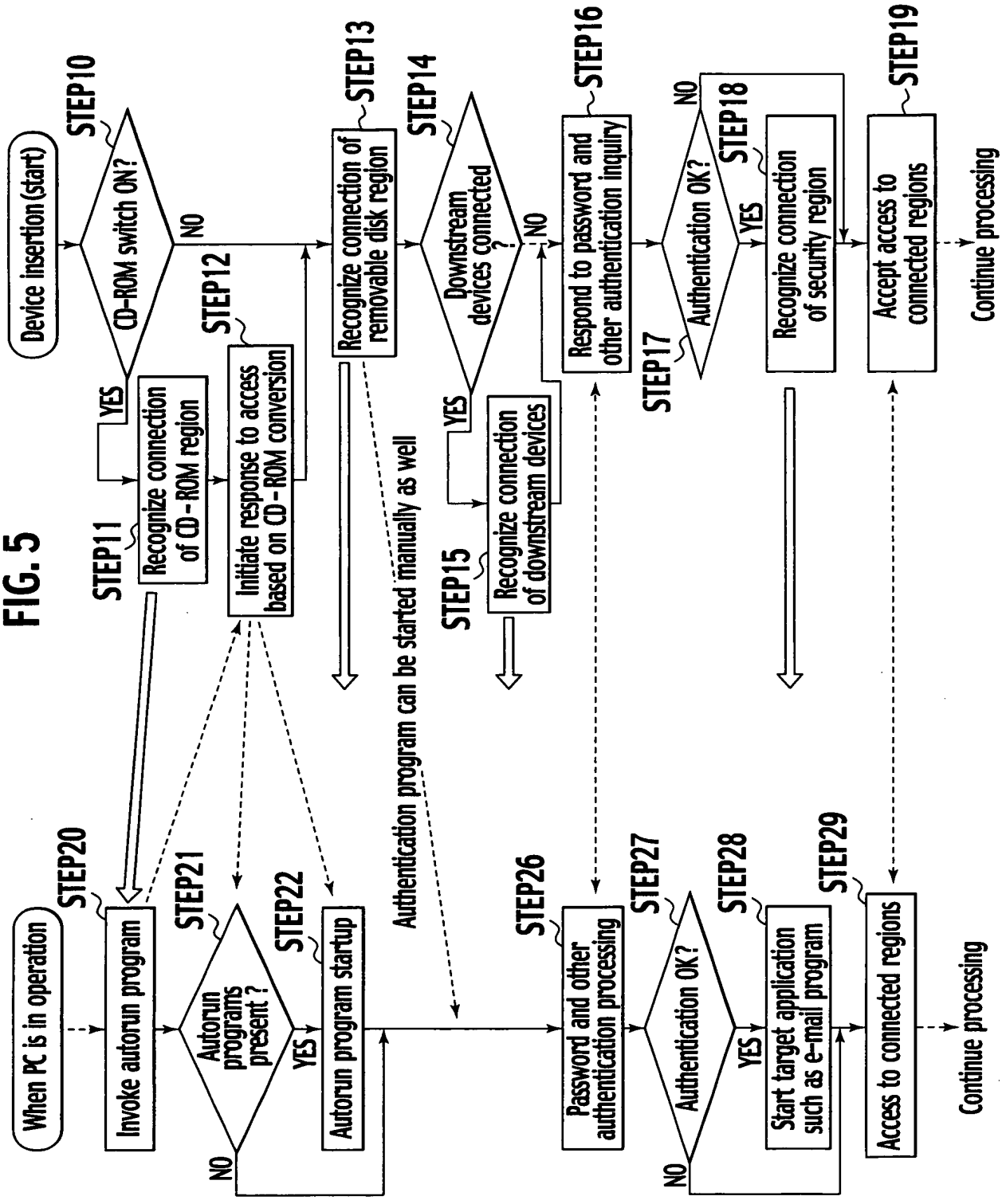

When PC is in operation
Device insertion (start)
STEP10
CD-ROM switch ON?
YES
NO
STEP11
Recognize connection of CD-ROM region
STEP12
Initiate response to access based on CD-ROM conversion
STEP13
Recognize connection of removable disk region
STEP14
Downstream devices connected ?
YES
NO
STEP15
Recognize connection of downstream devices
STEP16
Respond to password and other authentication inquiry
STEP17
Authentication OK?
NO
YES
STEP18
Recognize connection of security region
STEP19
Accept access to connected regions
Continue processing
STEP20
Invoke autorun program
STEP21
Autorun programs present ?
YES
NO
STEP22
Autorun program startup
Authentication program can be started manually as well
STEP26
Password and other authentication processing
STEP27
Authentication OK?
NO
YES
STEP28
Start target application such as e-mail program
STEP29
Access to connected regions
Continue processing

FIG. 6

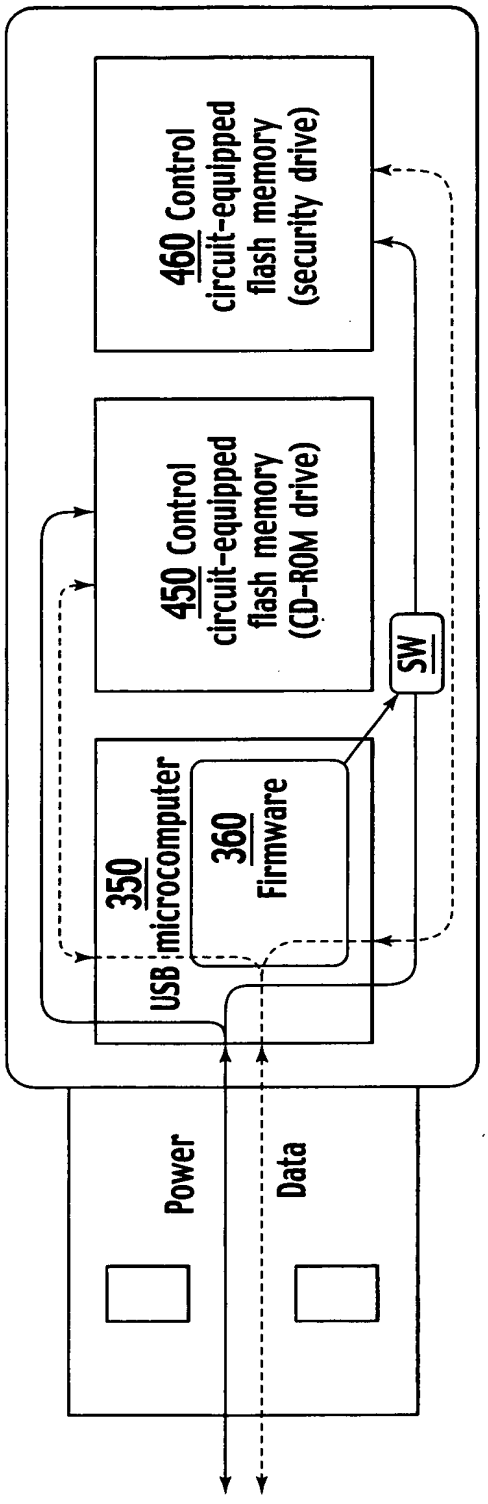
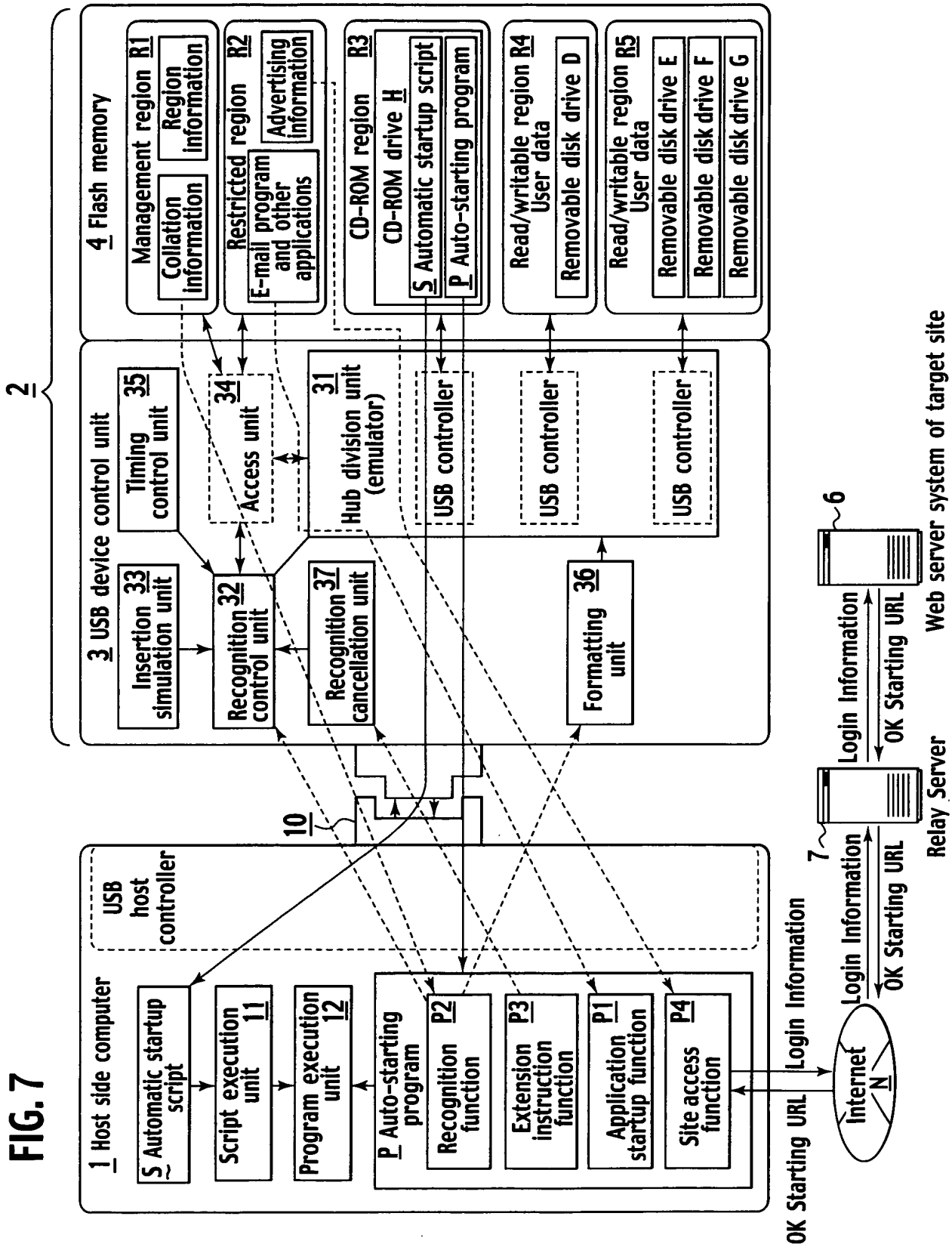

460 Control circuit-equipped flash memory (security drive)
450 Control circuit-equipped flash memory (CD-ROM drive)
SW
350 USB microcomputer
360 Firmware
Power
Data

FIG. 7


1 Host side computer
S Automatic startup script
Script execution unit 11
Program execution unit 12
P Auto-starting program
Recognition function P2
Extension instruction function P3
Application startup function P1
Site access function P4
USB host controller
10
2
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Timing control unit 35
Recognition control unit 32
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USB controller
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Region information
Restricted region R2
E-mail program and other applications
Advertising information
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CD-ROM drive H
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Removable disk drive D
Read/writable region R5 User data
Removable disk drive E
Removable disk drive F
Removable disk drive G
OK Starting URL
Login Information
Internet N
7
Login Information
OK Starting URL
Relay Server
6
Login Information
OK Starting URL
Web server system of target site